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PART I  
POWER DIVISION REPORT  
for  
FISCAL YEAR 1953

Generation and Transmission Loan Program

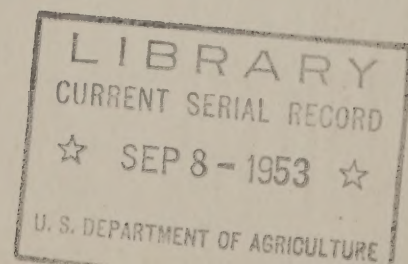
Generation and transmission loans made by REA during the year amounted to \$28,939,500 exclusive of loans made to distribution borrowers for transmission facilities. During the year REA rescinded generation and transmission loans totaling \$18,595,575.17, making the net amount loaned for generation and transmission \$10,343,924.83. Applications on hand for this type of loan totaled \$54,086,000 at the beginning of the fiscal year and \$101,783,600 at the end of the fiscal year.

The sum loaned for generation and transmission represented the smallest amount loaned for this activity since fiscal 1945, the primary reason being that early in the year the Administrator, due to the large demand for loans for all purposes, established a priority system for making loans which had the effect of deferring loans for generation and transmission except in cases where the facilities were urgently needed to maintain service. Loan requests were carefully scrutinized in regard to priority needs and many items requested by the borrowers were eliminated or deferred.

A loan in the amount of \$7,551,000 was made to one new power cooperative--Northwest Iowa Power Cooperative, Le Mars, Iowa. Loans in the amount of \$16,373,000 were made to eight existing power cooperatives--Dakotas Electric Cooperative, Inc., Edgeley, North Dakota; Southwestern Federated Power Cooperative, Inc., Creston, Iowa; Western Farmers Electric Cooperative, Anadarko, Oklahoma; Border Counties Power Cooperative, Inc., Warroad, Minnesota; L & O Power Cooperative, Rock Rapids, Iowa; Northeast Missouri Electric Power Cooperative, Palmyra, Missouri; Dairyland Power Cooperative, LaCrosse, Wisconsin; and Loup River Public Power District, Columbus, Nebraska. The balance of \$5,015,500 was loaned to seven distribution-type borrowers for new or additional generation facilities.

The loans made will provide for the construction of a 7500 kw addition to an existing steam plant, two new Diesel plants with a combined capacity of 2905 kw, the addition of a total of 19,800 kw to six existing Diesel plants, 1,337 miles of transmission line and related facilities.

Five loans totaling \$17,467,274.70 to power-type borrowers were rescinded in entirety--Farmers Electric Generating Cooperative, Inc., Old Dominion





THE HISTORY OF THE UNITED STATES

The history of the United States is a story of the growth of a nation from a collection of small, isolated colonies to a great, unified country. It is a story of the struggles of the people to establish a government that would protect their rights and promote their welfare. It is a story of the triumphs of the American spirit and the sacrifices of the American people.

The story begins with the first settlers who came to the New World in search of a better life. They found a land of opportunity and freedom, but they also found a land of hardship and danger. They fought for their survival and for their right to live in peace and harmony. They built a nation that was based on the principles of liberty and justice for all.

The story continues with the growth of the nation and the expansion of its territory. It is a story of the discovery of new lands and the settlement of new people. It is a story of the development of a strong and powerful government that was able to protect the rights of its citizens and to promote the interests of the nation as a whole. It is a story of the achievements of the American people and the sacrifices they made for the sake of their country.

The story ends with the present day, a time of peace and prosperity. It is a story of the progress that has been made and the challenges that remain. It is a story of the hope for a better future and the determination to make it a reality.

The history of the United States is a story of the American dream. It is a story of the pursuit of happiness and the realization of the American ideal. It is a story of the power of the American people and the strength of the American nation.



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Electric Cooperative, Twin Valleys Electric Cooperative, Inc., South Texas Electric Cooperative, Inc., and Ark-La Electric Cooperative, Inc. Surplus funds in the amount of \$92,850.77 were rescinded for two power-type borrowers—Central Nebraska Public Power and Irrigation District and Fidelity Gas Company. The balance rescinded totaling \$1,035,449.70 involved four distribution-type borrowers.

In addition to the loans made, eight loan requests were disposed of without requiring loans. Several of these applications were disposed of by working with the borrowers and their budgets to develop means for accomplishing the required purposes without additional funds. One \$9,100,000 application from Pennsylvania was withdrawn by the prospective borrower as a result of the development of a plan to solve the power problem through the existing power suppliers. The other applications have either been revised and are still pending or were not needed.

### Generation and Transmission Construction

In most respects the progress of construction of generation and transmission facilities was satisfactory. There were some delays in construction due to such actions as (1) state commission and court action in Kentucky, (2) labor strikes in Missouri, and (3) inability to obtain certain equipment on schedule, but on the whole, construction rates were as good as could be expected. During the first part of the year the Controlled Materials Program was in effect. Borrowers received sufficient allotments of steel, aluminum, and copper to meet their construction schedules. However, there were some delays caused by inability to place orders for structural steel in the summer of 1952 even though allotments had been received, and delay in delivery of certain items of heavy electrical equipment required for substations and generating plants. In a few instances, assistance from DEPA and NPA resulted in improvement of delivery of equipment to several borrowers.

During the fiscal year borrowers placed in service 54,800 kw of additional generating capacity consisting of 39,000 kw of steam plant generating capacity and 15,800 kw of internal combustion plant generating capacity. Even though construction activities continued at a high level the total additional plant capacity placed in service during fiscal 1953 was considerably less than the additional capacity placed in service in each of the preceding three years. However, several plants and additions to plants, with an aggregate capacity of over 60,000 kw, were not placed in service in fiscal 1953 as originally scheduled but will go into service during fiscal 1954. The carry-over of this capacity, in addition to other capacity under construction which is scheduled to be in service during 1954, indicates that REA borrowers will place in service during fiscal 1954 more generating capacity than was placed in service during any previous year in REA history.







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The volume of construction of transmission facilities by power-type borrowers during fiscal 1953 was greater than any previous year. During the year 18 power-type borrowers completed a total of 2,944 miles of transmission line and installed 331,500 kva of substation capacity (exclusive of generating plant substation capacity). Of the total mileage of transmission constructed during the year, 2,447 miles were 69 kv, 321 miles were 115 to 154 kv, and 176 miles were 44 and 34.5 kv lines. Not all of the miles of line constructed was placed in service during the year. The above breakdown by voltage shows the increasing percentage of lines being constructed at the higher transmission voltages--69 kv and above.

#### Technical Operations

Assistance to borrowers in the technical operation and maintenance of power facilities was provided on a more selective basis than for prior years. Such work was concentrated on those borrowers requesting our assistance and whose need was greatest. A thorough analysis of the monthly operating reports submitted by REA borrowers covering the technical operation of all generating plants and transmission systems was a guide in the selection of those borrowers where assistance on operation and maintenance was given and physical inspection of facilities made. Assistance was requested from and given to five cooperatives which started operation of steam generation plants. This assistance included selection of plant personnel, setting up operation and maintenance schedules, witnessing acceptance tests, etc. In two cases where serious breakdowns of generating facilities had occurred, our engineers were requested to help determine cause and extent of damage and establish preventive measures.

By witnessing acceptance tests and inspecting damaged equipment, our engineers were able to recommend to manufacturers the correction of certain basic design errors and the improvement of equipment. Most of our routine visits resulted in raising the general standard of operation and maintenance by assisting in the preparation of plant operating manuals, establishment of training courses for operating personnel and exchanging ideas on operation and maintenance methods. The fourth annual Generating Plant Operation and Maintenance Conference at Oklahoma City, Oklahoma, was attended by 75 representatives of our borrowers. Through special lectures and panel sessions attending plant superintendents were able to improve their knowledge and exchange ideas on special operating problems.

Further studies were made relative to the burning of heavy residual fuel oil in Diesel engines. Necessary improvements in the handling of this oil were made and are being incorporated in the two plants which are presently being converted to burning heavy fuel oil. This should result in better operation and reduction of maintenance cost.

Visits were made to several power-type borrowers to inspect transmission lines and substations, to assist in the establishment of adequate preventive maintenance, and to encourage the maintenance of adequate records and system maps.







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Upon request by two borrowers, our engineers assisted in analyzing and in effecting the correction of inherent manufacturing errors in power transformers and other equipment to eliminate costly power failures.

Assistance was given to borrowers in solving short circuit problems by analyzing these problems with a D-C calculating board, and in witnessing and analyzing complete A-C board studies.

##### Standardization

Very good progress was made in steam plant standardization during the past fiscal year. Ten steam plant equipment standards and two standard one-line diagrams have been completed during the year. Seven of the standards were approved for use by REA borrowers, and five were issued in printed form. Included in the five equipment standards published is the first standard specification ever issued, to our knowledge, for the competitive purchase of steam generators. The possibility of writing such a standard was always questioned throughout the engineering profession and the power industry has always been skeptical of this possibility. Comments which we have received from the manufacturers of steam generator equipment have been extremely favorable to the printed specifications they have received.

Two more equipment standards have been completed in draft form and submitted to the principal manufacturers of the equipment for comments and review. A third equipment standard has been approved by the manufacturers and will be submitted to the Technical Standards Committee "A" for final REA approval.

A start has now been made on standardized specifications for construction contracts. This type of standardization will have even wider benefits than the equipment standardization which has hitherto been undertaken and is still in progress. This is because standard construction specifications will assist all bidders to submit close bids at less cost to themselves, will reduce the manpower requirements of both borrowers' consulting engineers and of the REA staff, and will contribute to more economical construction and more efficient supervision of construction. The standard construction specification now in hand is to be used on contracts of the electrical installation type.

Prior to this fiscal year six equipment standards had been completed. However, five of the standards did not include equipment for both the smallest and the largest steam turbine generators used in REA practice and therefore required revision. Two of these standards have now been so revised and issued, whereas three are in final stages of completion before final adoption as standards. No work has been done on steam plant construction standards prior to this year.

Contemplated at the present time for standardization are (a) three equipment specifications, one of which has been started in a preliminary way; (b) two construction specifications on which no work has been done; and (c) two layouts







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for complete, standardized power stations for which preliminary sketches have been made. To complete this work in a reasonable period of time, concentrated effort will be required during the forthcoming fiscal year.

### Power Supply

With the continuing rapid addition of generation facilities by many power suppliers, capacity problems of REA borrowers have eased to some extent. There remain some borrowers for which power supply problems exist although, until now, these systems may have been able to obtain adequate power from municipalities or isolated utility systems. In other areas loads are developing where no adequate supply is yet available. As consumption of electricity increases, small municipal plants or isolated private utility systems become less dependable for assured power supply and other sources must be secured. Energy requirements for 1953 were 20% greater than in 1952. The following summary indicates the scope of some of the problems associated with the procurement of power for REA borrowers.

In the New England states power costs are continuing to increase and thereby handicapping the widespread use of electric power by rural consumers.

In Pennsylvania new power contracts were negotiated with three of the major power suppliers which supply the requirements of thirteen REA borrowers. Based on 1952 purchases, these contracts will result in approximately \$230,000 annual savings to these borrowers. In addition, the new contracts provide for the construction by power suppliers of all transmission facilities necessary to supply adequate service at future load centers. In Virginia contract negotiations have been concluded, enabling 11 borrowers to purchase energy from Southeastern Power Administration by wheeling over Virginia Electric and Power Company lines. Because of limited capacity of SEPA generating facilities, new contracts have also been negotiated with VEPCO under which VEPCO will supply the borrowers' requirements in excess of SEPA supply. Savings under the new SEPA contracts will amount to \$67,000 annually based on 1952 purchases. Negotiations are now under way for similar contracts with SEPA and VEPCO for five borrowers in North Carolina. Borrowers have also received rate reductions in Ohio and Michigan because of continued power supply study and negotiation on a group basis.

On June 24 the Public Service Commission of Kentucky, after reviewing the case involving the East Kentucky Rural Electric Cooperative Corporation which was remanded to the Commission by order of the Court of Appeals, has granted the power cooperative a certificate of convenience and necessity authorizing the cooperative to construct, operate, and maintain the remaining part of the 597 miles of transmission lines not previously authorized. The Commission ruled that the company's lines which might be duplicated were already overloaded and that "they could not be economically tapped or were inadequate in capacity."







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In the southeast several major developments occurred in fiscal 1953. Following an application of the Seminole Electric Cooperative for a generation and transmission loan, the Florida Power Corporation offered the member distribution cooperatives of the Seminole cooperative, as well as other cooperatives it serves, an 11% rate reduction. The Florida Power and Light Company has also offered a similar reduction to the cooperatives it serves. Eleven cooperatives will be affected if this offer receives the necessary approval. The Georgia cooperatives have been negotiating with the Southeastern Power Administration for the delivery of Clarks Hill power. The means of making Clarks Hill Power available to the preference consumers in Georgia has been subject to considerable controversy, and to date no solution has been worked out. If suitable arrangements are made approximately 70,000 KW of capacity would be available to preference consumers in Georgia from Clarks Hill.

Construction of transmission facilities by the Central Electric Power Cooperative in South Carolina is nearing completion. Central's rate of 6.2 mills per kwh offers a 17.3% reduction in power cost to the cooperatives to be supplied.

The Central Power Electric Cooperative of Minot, North Dakota, which began operating in mid 1952, has executed contracts for the sale of surplus energy to Ottertail Power Company and Minnkota Power Cooperative. These contracts enable Central to make more efficient use of its units and also enable the three parties to provide standby for each other.

The first section of the Bureau of Reclamation's 115 kv transmission loop in eastern South Dakota has been energized, enabling 4 of the 20 members of the East River Electric Power Cooperative to receive service. Energy is purchased from Northern States Power Company. Upon completion of Fort Randall Dam, the entire requirements of the members will be supplied by the Bureau of Reclamation.

The Bureau of Reclamation's 115 kv line between Rapid City and Midland, South Dakota, has been used by the Rushmore G & T Electric Cooperative since February 1953, in order to bring power in from the Black Hills Power and Light Company to relieve the power shortage of the West Central Electric Cooperative.

This past year there existed a close capacity load relation in Arizona, New Mexico, and sections of Texas due, in part, to the draught conditions which adversely affected hydroelectric generation. This condition was greatly aggravated by increasing irrigation and air conditioning loads. The critical capacity load situation has made imperative the closest cooperation between all suppliers. Wherever cooperative action could be taken by REA borrowers in the area, it has been done. In New Mexico the probable







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solution of the power supply problems of several cooperatives awaits completion of the generation station of the Plains Electric Generation and Transmission Cooperative. When this plant goes into operation, it will generate in the existing Texas-New Mexico pool making off-peak or emergency power in the plant available to the Bureau of Reclamation.

In the section of Texas east of El Paso, loads are developing for which no adequate, low-cost supply is yet available.

In the intermountain area, no satisfactory solution has as yet been developed to economically obtain the power needed for many of the REA borrowers to supply electric service in certain rural areas. It is anticipated that load growth of several cooperatives in Nebraska, Colorado, and Wyoming will be of such magnitude that the Bureau of Reclamation will not have sufficient capacity to provide the cooperatives' entire requirements by 1956. For this reason, the interested cooperatives have organized the Tri-State Generation and Transmission Association for the purpose of jointly solving their power supply problems.

The Chugach Electric Association has completed its steam generating plant which has relieved the critical power supply situation in the Anchorage and Matanuska areas of Alaska.

The suit brought by ten power companies doing business in Missouri and contiguous states for an injunction against the Administrator, the Secretary of Agriculture and other officials of the Government to prevent further proceeding by REA in regard to loans for certain REA cooperatives' generation and transmission facilities, which involve lease option and power contracts between the same cooperatives and the Southwestern Power Administration, was filed in the U. S. District Court for the District of Columbia in October 1950. Trial was held in October 1952 on the issue of legality of various contracts between the cooperatives and the U. S. Government. A decision was rendered on June 17, 1953, holding contracts were legal in all respects.

### General Management

During the current fiscal year advice and assistance was rendered on the general management of 37 power-type borrowers, 29 of which are in an operating stage, 4 in an initial construction stage, and 4 in a pre-construction stage. Field visits were made to 25 of these borrowers and detailed assistance was given on organization patterns, cooperative principles, member and public relations, sales of property, disposal of excess materials, internal controls, rate studies, development and adoption of cooperative policies, long-range financial planning, maintenance of records, preparation and installation of operating budgets, investment of surplus general funds, and power use programs.







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Accounting activities included the processing of 205 financial requirement statements, 318 expenditure reports, and 120 final inventories. In addition, there was a large volume of correspondence on accounting problems and nine field visits were made to advise borrowers on proper methods of clearing suspense inventory balances, maintenance of construction budgets, transfer of completed construction costs to the plant accounts, and special accounting problems relating to cooperatives having operating agreements with SPA or commercial utilities.

The past fiscal year marked significant progress in the continued standardization of formalized management tools for the more effective rendering of general and operating advice and assistance to the power borrowers. During the year, detail work on a standard construction budget format was substantially completed and the initial installation of this new system of loan fund control was made; work on the programmed series of comprehensive management surveys was continued--two of which are 90% complete; and a much needed revision of REA's depreciation manual and generation and transmission units of property reached the stage of being forwarded to selected borrowers for comment. In addition, an intensive program directed toward impressing the borrowers with the need, value, and method of development of formal, written policy records was undertaken as a part of the over-all management program for the power-type borrowers.

The third annual week long conference for board members and managers of the power borrowers was sponsored, arranged, and conducted with excellent, and, we believe, lasting results. As was the case in the previous year's conference, a considerable part of the program dealt with power-type borrowers' power use activities which subsequently resulted in the installation of active power use programs by 13 borrowers.

All but one of the borrowers were meeting current debt service obligations and the one delinquent borrower became current during the first week of 1953. Six borrowers ended the year with advance payments totaling \$1,217,771.67.



